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DATAMATION

FOR MANAGERS OF INFORMATION TECHNOLOGY WORLDWIDE

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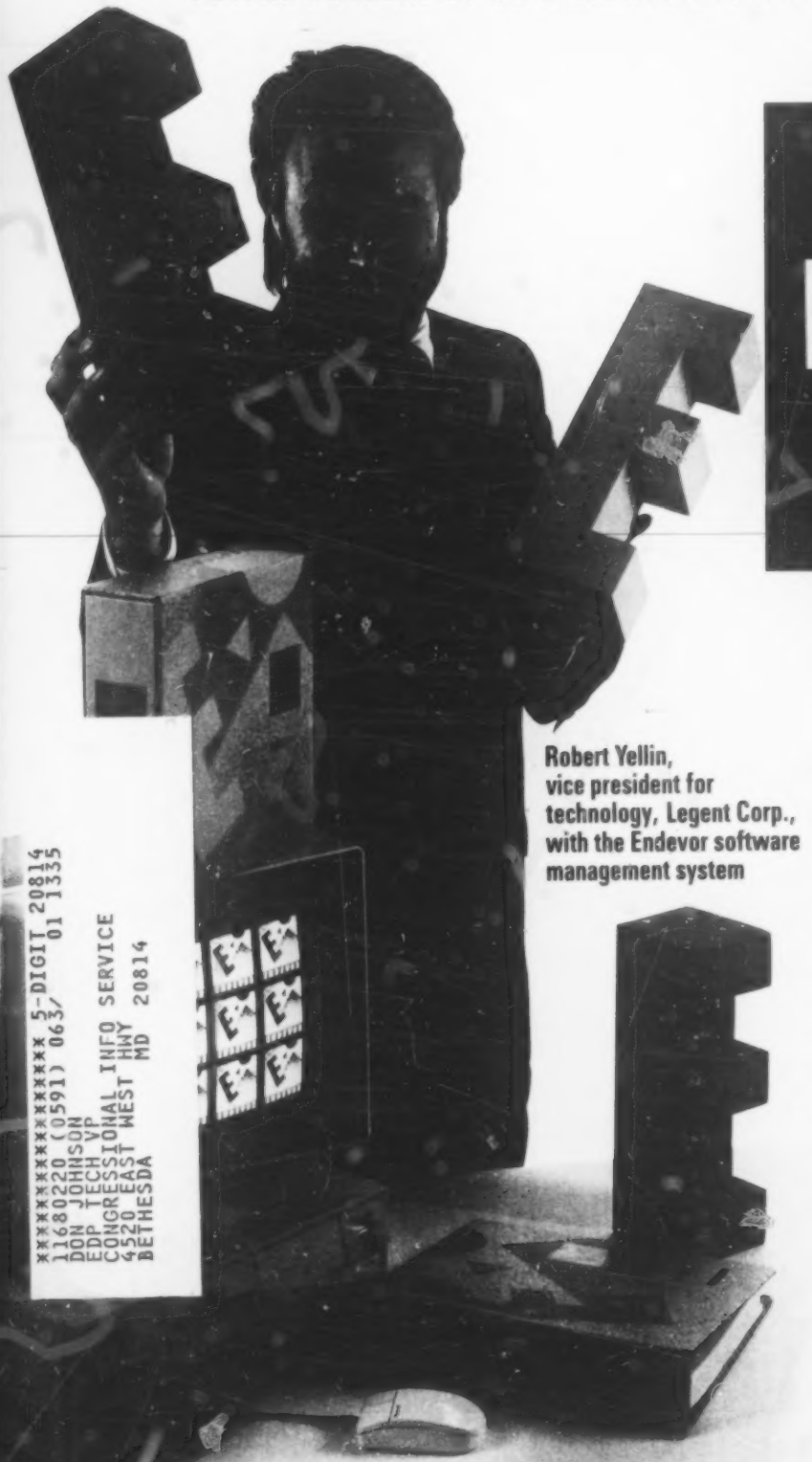
JUNE 1, 1991

Application Development Control!

page 28



Robert Yellin, vice president for technology, Legent Corp., with the Endevor software management system

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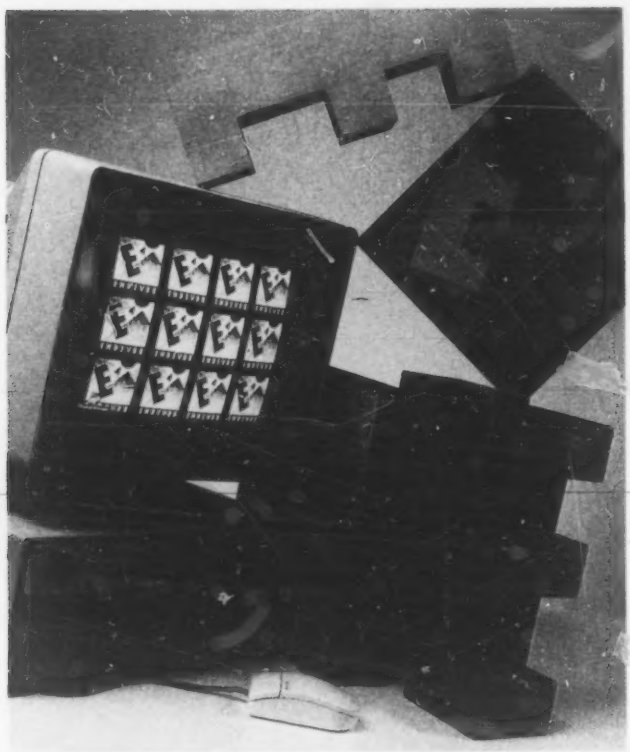
COVER STORY

SOFTWARE MANAGEMENT



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BY J. WILLIAM SEMICH

Tired of programs that go dump in the night? Suffering from a chronic case of the midnight abends? Legent Corp.'s Endevor integrated software management tools make order out of chaos.

Cover photography by Dave Bradley

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USER SPENDING SURVEY

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BY JEFF MOAD

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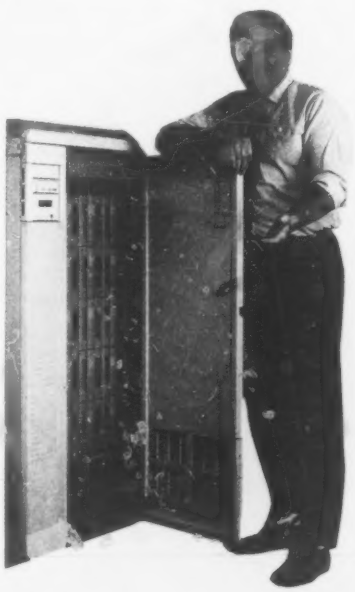
Data General is betting the farm on its new AViiON 7000 and 8000 UNIX servers. But can the company convince customers to gamble on it?



The AViiON 7000 and 8000 UNIX servers will make a spirited run at IBM and HP, says Data General's Marcucci.

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Mips Computer Systems: Forging A RISC Workstation Standard

RISC chips designed by Mips now power systems from a number of computer companies. But lack of software compatibility has—until now—kept Mips under Sun Microsystems's shadow.

BY BOB FRANCIS

Timothy Schell has some office space in Florida he's willing to let go cheap. No, it's not in a sinking building or miles from the nearest highway. On the contrary, Schell's office is well air-conditioned and custom-built for the comfort of its former occupant, a Unisys 1855 midrange system.

His organization, the city of Winterhaven, Fla., recently replaced the Unisys system with a RC3230 RISC computer server from Mips Computer Systems Inc. of Sunnyvale, Calif. The RC3230 can sit in the corner of a room built for the comfort of people, not just machines. But the biggest comfort it has brought data-processing manager Schell is the savings. "We estimate the payback at $41,000, so at a savings of $20,000 a year in maintenance alone, we should make that back within two years," he says.

Schell uses the RC3230 primarily for a utility-billing application that previously ran on the Unisys. The application was ported to the Mips machine and to UNIX using software from Migration Technology Ltd. of Maidenhead, U.K., which converted the code from BASIC to C.

Who Is Mips, Anyway?

The city of Winterhaven purchased its server from Total Tec Systems Inc., a value-added reseller (VAR) of Mips's systems based in Edison, N.J. Schell admits that, before he bid on a replacement for the Unisys, Mips was unfamiliar to him. "We really hadn't heard of Mips, but we were looking at a way to cut costs and examining Concurrent DOS [from Digital Research Inc. in Monterey, Calif.]. But the Mips system [performance] just blew everybody away," Schell says.

Many IS managers, like Schell, may not be aware of Mips Computer Systems, which is both the design firm behind the highly regarded Mips reduced instruction set computing (RISC) microprocessor and a fast-growing workstation and systems supplier.

One reason for its relative anonymity is that most workstations based on Mips's RISC chips are sold under other well-known names. Companies like Digital Equipment Corp., Silicon Graphics Computer Systems Inc. and Sony Corp. of America design Mips's chips into their own systems. Other well-known companies such as Prime Computer Inc., Pyramid Technology Corp. and Wang Laboratories Inc. are original equipment manufacturers (OEM) for Mips, selling complete Mips systems under their own names. And Mips has also signed up other customers that sell anything from Mips chips on boards, to subsystems, to full system implementations. Although Mips is primarily thought of as a chip design company, about 70% of its revenue currently comes from systems sales.

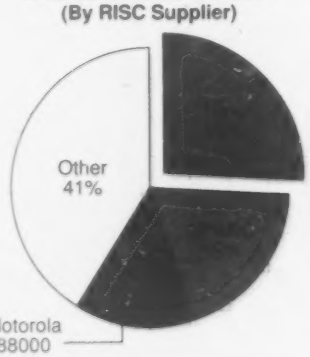
"Since many of our chips and designs are sold through other vendors, many users don't realize they've got Mips products in their shops," says John Hime, Mips vice president of systems marketing.

Mips's decision to sell both chips and systems has had a negative side effect.

How Mips Stacks Up

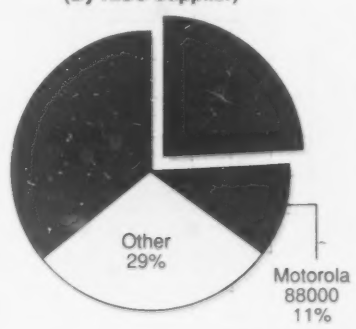
Mips-based servers and systems lead at the high end of the market...

% OF MIDRANGE MARKET (By RISC Supplier)



But lag behind Sun and other SPARC system suppliers when lower cost workstation sales are considered.

% OF WORKSTATION MARKET (By RISC Supplier)



Source: Gartner Group

WORKSTATIONS

4th IN A SERIES

RISC PROCESSORS

Those companies, like Digital, that use Mips chips as the basis for their own system designs, wind up with systems that are not binary compatible with other Mips chip-based systems, such as those from Pyramid. As a result, software for today's generation of Digital workstations won't run on Pyramid systems. The systems that Mips itself makes, which are resold with little modification by other systems makers, are binary compatible with each other.

Binary compatibility may not be a problem for future Mips systems, no matter who builds them, says Sandy Gant, an analyst in Santa Clara with the Stamford, Conn.-based Gartner Group Inc. "As a start-up, [Mips] needed resellers, and they didn't emphasize binary compatibility. But now they're beginning to bring everybody together," she says, referring the recent formation of a consortium, called the Advanced Computing Environment (ACE) initiative, which is rallying around Mips chips as the basis for a new RISC workstation standard (see sidebar, "Mips Moves Into The Mainstream").

Mips Moves Into The Mainstream

If reduced instruction set computing (RISC) workstations were standardized on a single platform, would that ignite the type of widespread growth that PCs enjoyed in the early- to mid-1980s? A new industry alliance announced in April is hoping so. Called the Advanced Computing Environment (ACE) initiative, a new 21-company alliance unveiled a nonproprietary standards-based computing environment that it believes will become the preferred workstation choice of tomorrow. Among the group's plans for the environment are specifications for a platform based on microprocessors from Mips Computer Systems Inc., in addition to support for more standard systems based on 80X86 chips from Intel Corp.

Analysts say that the ACE partners, led by Compaq Computer Corp., Digital Equipment Corp., Microsoft Corp., Mips Computer and The Santa Cruz Operation Inc. (SCO), could change the face of the workstation market—and the computer industry in general. For PC maven Compaq, the expected addition of a line of RISC workstations should help the company diversify into the fast-moving RISC marketplace. And it will give Digital a desktop strategy, which it has sorely lacked ever since the advent of the PC.

Behind the initiative's standard is the Mips R4000, a 64-bit microprocessor, and a choice of two new operating systems—a new OSF/1-based operating system from SCO and OS/2 3.0 from Microsoft. The standard also encompasses an architecture that combines Digital's Turbochannel bus with the PC industry's Expanded Industry Standard Architecture (EISA).

Binary compatibility across the different product lines will be guaranteed, say ACE members, with a standard based on Digital's method of ordering bytes. This byte-ordering scheme should aid in providing data compatibility not only with workstations but with the current installed base of personal computers, once compliant versions of Windows and New Technology OS, or OS/2 3.0, are available from Microsoft. That will be important for IS managers who plan to link workstations with their huge installed base of PCs, analysts say.

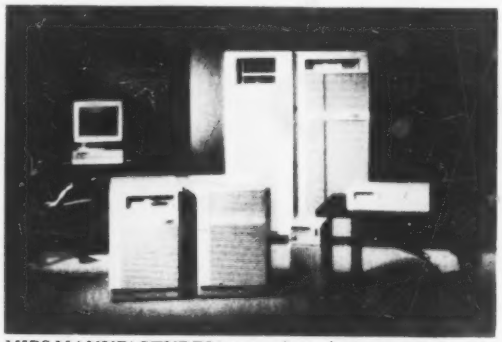
Beyond Binary Bugaboos

It may be too soon to tell how far this binary compatibility will go. Even though a number of companies have lined up to build what they say will be future software-compatible workstations using Mips chips, older systems incorporating Mips microprocessors are not likely to enjoy the same binary compatibility.

Mips's archrival, Sun Microsystems Inc., and the SPARC International user group have made considerable headway in the binary compatibility arena. SPARC International keeps a careful eye on Scalable Processor Architecture (SPARC) compatible manufacturers, testing and certifying machines and software for binary compatibility. As a result, Sun leads the workstation market today with approximately 30% market share, according to the San Jose-based market research firm Dataquest Inc. Sun hopes that its own and compatible systems will help it become the de facto standard for all workstations.

But Sun has yet to convince any major workstation vendor on the scale of Compaq Computer Corp., Digital or IBM to build SPARC-compatible systems (see "Sun Compatibles: Who's Putting The Sizzle In SPARC?" May 1, 1991, p.43). Most big computer companies seem leery of competing directly with Sun's engineering and marketing muscle. Indeed, Sun by far dominates the SPARC market today. Of the 160,000 SPARC systems expected to be shipped in 1991, less than 16% or 25,000 will come from non-Sun suppliers, predicts the market research firm Workgroup Technologies Inc. of Hampton, N.H.

By focusing primarily on sales through OEMs and systems suppliers, Mips has avoided direct competition with systems vendors to a large degree. But, as its policy of soft-peddling its own workstations and servers changes, Mips may well find itself with Sun's problem, competing more directly with its own customers. Mips itself downplays this possibility. "The companies we sell to—Prime, Wang, Digital—they're used to competing with each other as minicomputer vendors. It's not like they have a new vendor to compete with," says Mips's Hime.



MIPS MANUFACTURES its own line of systems and licenses its RISC design to others.

A Red Hot Design

Mips's customers are especially looking forward to the R4000, a new 64-bit RISC microprocessor that Mips says will ship at the end of this year. A third-generation chip, the R4000 includes a number of advances over its R3000 predecessor. These include built-in integer and floating-point processors, and superpipelining—a technique that speeds processing by allowing the chip to issue two instructions during each clock cycle. Other RISC chips issue a single instruction per cycle. As a result, Mips says, the R4000 will perform at 50 million instructions per second (MIPS). "That kind of power is attractive to companies that want to get into the competitive RISC marketplace," says Gartner Group's Gant. It's also a comfort to users like Winterhaven's Schell. "It's good to know [that Mips] has the technological wherewithal to compete, because it means they're a viable vendor," he says.

The R4000 announcement enters into a workstation world where the price/performance leader seems to change on a monthly basis. Currently, the performance leader seems to be Palo Alto-based Hewlett-Packard Co., which released the HP Apollo 9000 series 700 RISC workstations in March. Analysts say these systems leapfrog the competition in much the

WORKSTATIONS

4th IN A SERIES

RISC PROCESSORS

same way that IBM's RS/6000 leapfrogged Sun last year. HP's new entry-level model runs at 57MIPS, compared with IBM's RS/6000 model 320 at 29MIPS and Sun's SPARCstation 2 at 28MIPS.

Because the R4000 chip is still months away, at least some workstation suppliers have been forced to lower the prices of systems based on the older Mips R3000 in order to compete against newer generation workstations from the likes of HP. Digital—Mips's largest chip customer and according to most analysts the third largest supplier of workstations overall—is particularly vulnerable. According to a recent 1990/1991 DATAMATION/Cowen & Co. survey of DATAMATION readers, 30% of Digital workstation users are considering switching to other vendors because they are dissatisfied with the price of Digital's workstations. Perhaps for this reason, Digital in March lowered the price of its 16.2MIPS DECstation 3100 almost 30% from $6,995 to $4,995 and reduced the prices of other models by an average of $1,500.

Digital can probably be heard cheering about the Mips R4000 chip. If Mips has samples available by midyear, production of workstations based on the chip could begin by the end of the year, meaning system vendors like Digital could be shipping products by the middle of 1992.

One benefit of working with Mips, says Gartner Group's Gant, is that the company's products and services allow customers to cut their time to market considerably. For instance, Digital recently announced plans to use a new motherboard on its future RISC-based workstations and servers, which can be upgraded via a detachable CPU module. The design will ease the transition from the Mips R3000 processor to the new R4000 chip. The motherboard is expected to be included in workstations that Digital plans to introduce in the third quarter.

AMERICAN AIRLINE'S HOPPER: At the forefront of the downsizing trend

Despite being thought of as a chip design vendor, Mips actually has its largest market share in the world of RISC midrange systems—servers that are used more like traditional minicomputers than workstations. Unlike many proprietary minicomputers, however, most Mips-based midrange systems are based on UNIX. All can run any of approximately 1,100 third-party applications that Mips says have been ported from the proprietary world. "It surprises a lot of people, but that's where a lot of the growth is," Gant notes.

It's these minicomputer-like applications—many built on top of database packages from Informix Software Inc. of Menlo Park, Calif.; Ingres Corp. of Alameda, Calif.; and Oracle Corp. of Redwood Shores, Calif.—that Mips hopes will further open up the midrange market for RISC systems. "We believe that the midrange market is larger than the workstation market, and it's just beginning to take off," says Mips's Hime. Dataquest analyst Laura Segervall agrees. "That market is just beginning to grow," she says.

Up, Up And Away

As with other RISC chips, like Sun's SPARC, Mips chips are scalable. That is, they can be used to build everything from laptop-sized systems to multiprocessor mainframe-class systems. This lets Mips customers build networks of Mips-based systems, encompassing desktop systems, file servers and midrange systems, that can rival mainframes. Mips customers, in fact, visualize using such Mips systems to downsize existing mainframe applications to cheaper, faster platforms. Some are moving to multiprocessor midrange systems; others are opting for high-speed networks that distribute most of the processing power to the desktop.

That's what American Airlines Inc. had in mind when it recently decided to downsize and rework an old mainframe application. The subsidiary of Fort Worth, Texas-based AMR Corp. ported an IBM 3090 MVS/TSO mainframe application to a group of 12 Mips RS2030 workstations that are networked to a Mips RC3240 server. The division's Crew Allocation System now schedules flight crews for American's nine fleets, each of which has as many as 250 aircraft. The workstations run the RISC/os UNIX operating system and use the OSF/Motif graphical user interface.

According to Shane Batt, a senior consultant with American's Decision Technology Group, the Mips server acts as a communications gateway to American's IBM mainframe complex in Tulsa, Okla., which runs flight-scheduling, financial and other business applications. A primary benefit is that response time has been cut from nine hours to three. "Workstations handle mathematical optimization better," Batt says.

Applications like this will become ubiquitous in the future, believes American's senior vice president for information systems, Max D. Hopper. "Workstation vendors are providing tools that allow IS organizations to offload many of these mainframe applications," he says. And, indeed, they're also freeing up some land in Florida.

This is the fourth in a series of articles focused on popular RISC-based platforms. DATAMATION next looks at high-end superworkstation systems.

Selected List of Mips Systems Suppliers

Computers that use Mips technology are available from Mips Computer Systems itself, from OEMs and from custom systems suppliers. Companies currently shipping products include the following:

Mips Systems/OEM Partners

MIPS Computer Systems Inc.
Sunnyvale, Calif.
Circle No. 300

Prime Computer Inc.
Natick, Mass.
Circle No. 301

Pyramid Technology Corp.
Mountain View, Calif.
Circle No. 302

Wang Laboratories Inc.
Lowell, Mass.
Circle No. 303

Custom Systems Using Mips Microprocessors

Digital Equipment Corp.
Maynard, Mass.
Circle No. 304

Sony Corp of America
New York City
Circle No. 305

Silicon Graphics Corp.
Mountain View, Calif.
Circle No. 306

Source: DATAMATION

SPECIAL REPORT
USER SPENDING SURVEY

Demand Solid, Budgets Soft

The latest DATAMATION/Cowen & Co. IS buying survey reveals a growing need for more mainframe MIPS and storage capacity, even as downsizing proceeds. But purchasing is being delayed.

BY JEFF MOAD

The mainframe is dead?

That's what we've been hearing for several years. First the downsizing of applications to networks of PCs was going to kill off the good old data center workhorse. More recently, client/server computing and a new generation of beefed-up UNIX-based multiprocessor systems were supposed to deliver the coup de grace to Big Iron.

And who could argue, especially since key mainframe vendors like Amdahl Corp. and IBM recently reported unexpectedly ugly financial results. Is it time to face facts, send out the funeral notices and acknowledge the death of the mainframe?

Not so fast, say the 2,487 executives and managers who responded to this spring's DATAMATION/Cowen & Co. computer industry survey. Although users' immediate plans for buying large systems were rocked early in the year by the recession and the Persian Gulf War, IS executives say their need for additional mainframe processing power and storage capacity will continue to grow at or above historical levels for at least the next three to five years. And, while it's true that many IS departments are downsizing mainframe-based applications to networked PCs and new client/server architectures, the survey says corporate users are shifting to the new technologies at a slow, measured pace.

User interest in buying any new technology, however, took a back seat to the outbreak of recession and war. Last November, in a separate DATAMATION/Cowen survey of user reaction to IBM's new ES/9000 mainframe, 16% of 43XX and 3090 users said they expected to spend "considerably more" on all types of processing hardware in the coming year, and only 10% said "considerably less." By February, however, with the recession firmly in place and Operation Desert Storm under way, only 13% said they would be spending considerably more, and a hefty 18% answered "considerably less."

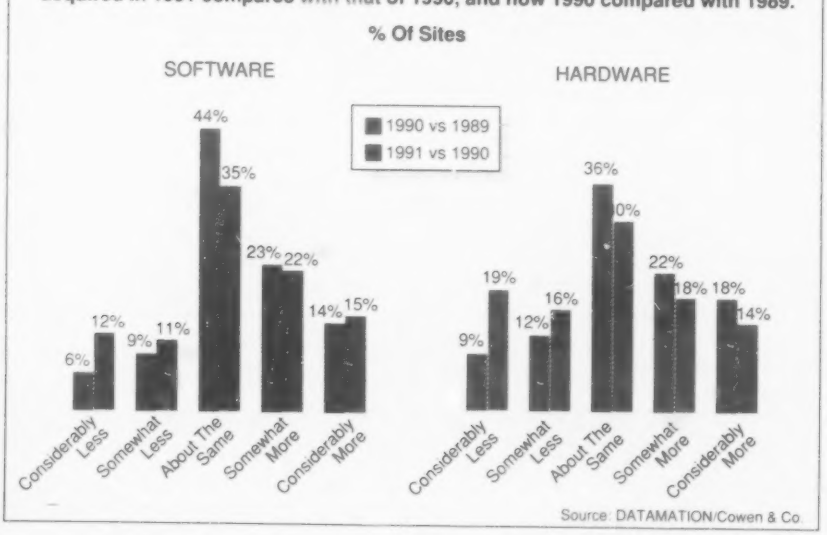
IS spending on software is projected to be slightly higher than on hardware in 1991, but even software spending is expected to be down from last year. Thirty-nine percent of large-system sites are expecting to spend somewhat or considerably more on software this year, compared with 44% last year.

Even once robust PC spending has been affected by the slowdown. Last year, 46% of users said they'd be buying more PCs in 1990 than they did in 1989; this year only 24%—just over half as many—said they'd be buying more PCs in 1991 than they did in 1990.

And downscaled spending plans aren't limited to IBM user organizations. While 35% of all IBM sites said their 1991 spend-

Total Hardware And Software Outlays Drop

How the dollar value of hardware (CPUs, peripherals and PCs) and software to be acquired in 1991 compares with that of 1990, and how 1990 compared with 1989.



Source: DATAMATION/Cowen & Co.

ing would be considerably less or somewhat less than it was in 1990, the figure for Unisys sites was 46%.

But, even though spending plans seem to be off across the board, IS executives say it's not because they don't need more hardware and software tools to get the job done. IS's need for increased PC, midrange and even mainframe capacity is up, even if the budget isn't there to accommodate it.

Mainlining MIPS

Over the next three to five years, in fact, survey respondents said their need for mainframe MIPS will grow by 23% per year. Their need for disk storage will grow by 27% per year. Both of those figures are slightly higher than the rate at which users saw their large-system capacity needs growing a year ago.

Driving those increasing capacity requirements are continuing lengthy application development backlogs and the adoption of new technologies, such as document and image processing. For example, 35% of the respondents from IBM 370-class mainframe shops said their current new application backlogs stretch out more than 24 months, and fully 80% have backlogs exceeding 12 months. In general, backlogs at large-systems shops are virtually unchanged from two years ago. The situation is worse for users of IBM midsized mainframes. Two years ago, 17% of those users said they had application development backlogs longer than two years. Today, 31% report two-year + backlogs.

As a way to attack those bulging backlogs, a growing number of IBM users seem to be buying into Big Blue's mainframe-based AD/Cycle computer-aided software engineering (CASE) solution. Forty-one percent of such users say they plan to use or evaluate AD/Cycle. That's up from 32% last year. Among current DB2 users, interest in AD/Cycle is even higher. Sixty-one percent of those users say they plan to use or evaluate AD/Cycle.

IBM's newest mainframe operating system, MVS/ESA, also is gaining strong user acceptance. Sixty-three percent of 3090 mainframe sites reported they have already converted to ESA or plan to do so this year. Widespread adoption of AD/Cycle and ESA should help increase demand for mainframe capacity.

Also continuing to spark mainframe demand is the growth of on-line transaction-processing applications. IS executives already running or planning to run OLTP applications said they expect the transaction load they'll be responsible for processing will grow at 19% per year for the next five years. Users say that growth rate is undiminished from what they've seen over the last five years.

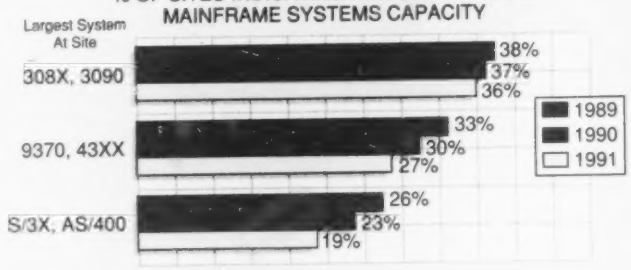
The bulk of those OLTP applications will continue to run on IBM mainframes. Sixty-seven percent of the time IBM is mentioned as the current, and will be their future, OLTP hardware supplier.

Users are clearly looking to new OLTP technology suppliers, however. Massively parallel hardware vendor Teradata Corp. and UNIX supermini vendor Sequent Computer Systems Inc. each emerged in the survey to claim 2.7% of users' planned OLTP applications. Last year, Teradata attracted merely

The Big Picture For Mainframes, PCs

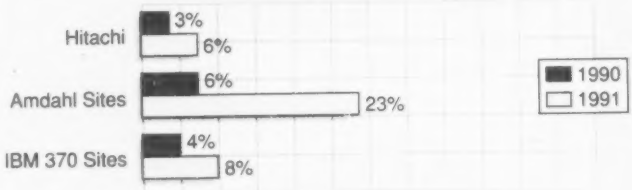
Mainframe capacity demand slips...

% OF SITES INDICATING A NEED FOR MORE MAINFRAME SYSTEMS CAPACITY



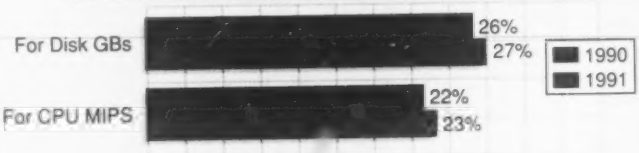
But unit growth of installed base is up for '91.

PLANNED NET NEW INSTALLATIONS AS A & OF RESPONDENTS' LARGER SYSTEMS CURRENTLY IN PLACE



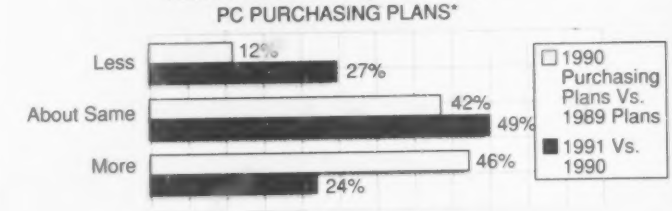
In the longer term, mainframe capacity growth is still doubling every three years.

AVERAGE ANNUAL ANTICIPATED % RATE OF INCREASE IN CAPACITY NEEDS IN THE NEXT 3-5 YEARS



Fewer PCs will be acquired in 1991.

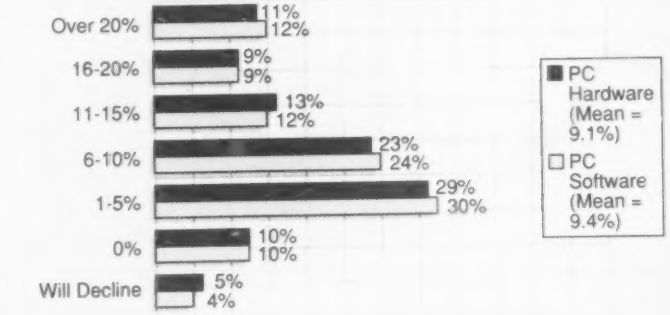
PC PURCHASING PLANS*



*Weighted by number of PCs purchased in 1990

But longer term, PC hardware/software budget growth will average 9%.

AVERAGE ANNUAL RATE AT WHICH USERS EXPECT PC HARDWARE AND PC SOFTWARE BUDGETS TO INCREASE OVER NEXT 3-5 YEARS



Source: DATAMATION/Cowen & Co.

1.4% of users and Sequent only 1.1%. Survey respondents indicate that Digital Equipment Corp.'s share of the OLTP market is dropping; currently 16% of respondents use DEC machines for OLTP, but only 12% expect to in the future. Tandem Computers Inc. is holding steady at about 5%.

IS executives also are clearly more interested than ever in client/server computing and UNIX, especially for departmental applications. Forty-five percent of respondents at sites with 1990 annual revenues over $250 million said they are either at the pilot stage or are starting to implement client/server systems. Acceptance is not nearly so great at smaller companies. At organizations with revenues under $50 million, only 22% of respondents are conducting pilot operations or starting to implement client/server computing.

> Customers aren't saying "no," they're saying "I don't know."

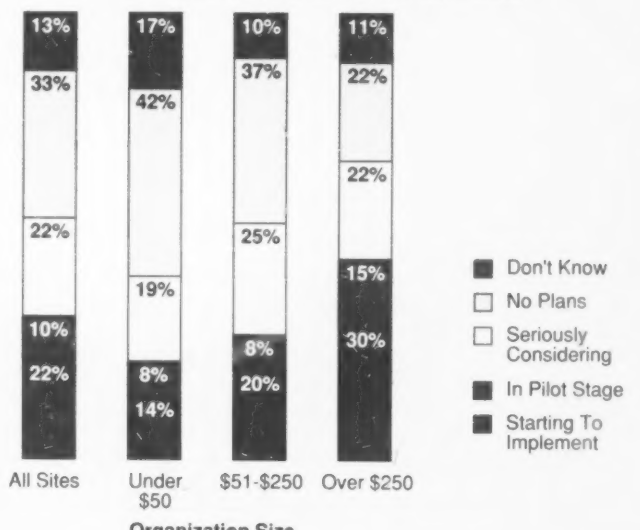
For their new client/server departmental applications, IS managers seem to be favoring both UNIX and OS/2. While IBM continues to be the primary departmental systems supplier for an overwhelming 91.6% of survey respondents, a collection of UNIX vendors also seems to be enjoying popularity with IS. IS executives indicating the strongest need for increased departmental systems capacity were those that identified AT&T, Digital, Hewlett-Packard Co., Sequent and Sun Microsystems Inc. as their primary suppliers. Among organizations evaluating, prototyping or implementing client/server architectures, 31% said they considered UNIX "very desirable." Only 13% of organizations with no client/server plans consider UNIX "very desirable." Among larger organizations, 24% said UNIX is the operating system they are most likely to use in implementing future new departmental systems.

But OS/2 is not far behind; 19% of large organizations plan to focus primarily on OS/2 for future new departmental systems. And 33% are targeting OS/2 for future new office systems. Users clearly consider OS/2-based relational database management systems from vendors such as IBM, Microsoft Corp. and Oracle Corp. as key to developing client/server architectures around desktop systems. While only 9% of survey respondents said they have an OS/2 client/server RDBMS (such as Microsoft/Sybase's SQL Server) installed today, 18% said they plan to have one working by 1992. IBM, with its OS/2 Data Manager, is emerging as the leading relational database vendor for client/server PC networks; 45% of potential users identified Big Blue as their supplier by 1992. SQL Server is coming on strong, however. Although only 7% are currently using the product, more than twice that number, 15%, plan to implement it by 1992.

Client-Server Computing Well Under Way

Fully 45% of the largest sites are implementing client/server computing.

CLIENT/SERVER IMPLEMENTATION PLANS



Source: DATAMATION/Cowen & Co.

PC Apps On The Rise

More client/server computing translates into more new applications on PCs and workstations. Last year, survey respondents said only 18% of their new applications would be implemented on PCs and/or workstations; this year that figure has risen to 24%. During the same period, the mainframe share of new applications dropped from 64 to 58%, while the mini's share remained at 18% in both surveys.

Longer term, IS executives said mainframes will continue to claim 49% of new applications compared with 32% for PCs and/or workstations and 19% for minicomputers. But 84% of IS managers tell DATAMATION that the proliferation of PC networks will increase mainframe workloads or have no effect on them; 85% said the same thing last year.

And, for new distributed-processing applications in particular, the mainframes have a slight edge over minis. Reports of the percentage of stand-alone or networked PCs and workstations being used as the principal platform for distributed-computing applications has risen sharply from 39% in 1990 to 48% in this year's survey. At the same time, the number of sites citing the mainframe as the principal distributed-computing platform dropped from 39 to 34%. But the percentage using minis for that purpose dropped even more steeply, from 22% in last year's survey to 18% in this year's.

Still, for now, continued economic uncertainty and lower IS budget growth are forcing IS executives to take a conservative approach to their immediate mainframe purchasing plans.

"[Customers] aren't saying 'no,' they're saying, 'I don't know,' " says IBM Data Systems division president Nicholas M. Donofrio. For example, although Donofrio says industry and customer response to IBM's new ES/9000 generation of mainframes introduced last fall has been positive, he acknowledges that orders have not been meeting expectations. He

attributes that to longer buying cycles brought on by economic uncertainty.

Many IS organizations are leaning toward upgrading their existing 3090-class systems or even buying used equipment before bringing in new ES/9000 hardware. Current 3090 users plan to replace 20% of their large systems in 1991; 14% will give way to upgraded 3090s or 3090s purchased from the used market. Only 7% will be replaced by new ES/9000 machines.

The low rate at which ES/9000s seem to be replacing 3090s reflects a couple of trends. First, since IBM has been pushing users to purchase rather than lease its big iron, most 3090 users own their machines. That makes them more reluctant to replace what they have and more likely instead to upgrade and expand their already installed systems. Second, few users are currently strapped for 3090 power. The survey shows that only 27% of 3090 model E, J and S users have maxed out to five or six-processor complexes. In fact, nearly half are still at one or two processors.

IS also is taking a conservative approach when it comes to migrating to IBM's next generation of mainframe disk storage devices, the 3390s. Of those large disk subsystems to be purchased in 1991, more than half will still be of the previous generation 3380 class. That figure is virtually unchanged from last year.

A Superior Machine

Not that mainframe users aren't enthusiastic about IBM's new mainframe offerings. Users of IBM midsized mainframes have enthusiastically purchased the new ES/9000 air-cooled systems. And the survey shows that users of all classes of 3090 mainframes rated the high-end ES/9000 superior in new functionality and availability compared with competing machines from Amdahl and Hitachi Data Systems Corp. IS, not surprisingly, prefers the plug-compatible offerings for price/performance.

The strong showing of the ES/9000 has placed some added pressure on the plug-compatible manufacturers. Only 21% of IBM mainframe customers surveyed who have not yet installed a PCM system said they are seriously considering one this year. That's down sharply from 26% in last year's survey.

Mainframe users seem particularly skeptical about Amdahl's ability to respond to the ES/9000. Among those who are seriously considering a switch to a PCM mainframe supplier, only 46% identified Amdahl as their likely supplier, versus the 44% who named HDS. That's a switch in the large-scale PCM market, where Amdahl controls about 86% of the PCM systems already installed to HDS's 14%.

Neither IBM nor HDS can rejoice just yet over positive customer response to their new mainframe products, however. First, IS must perceive some improvement in overall economic conditions, at least enough to loosen IT purchasing purse strings.

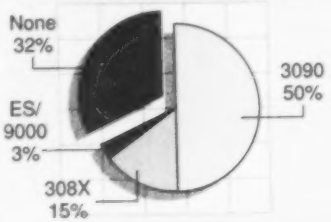
The survey indicates that eventually they will. IS executives said their hardware budgets will grow by 7.1% per year over the next three to five years. That's up slightly from the 6.9% figure they gave last year. And the long-term picture is even brighter for PC hardware and software budgets. The average annual IS budget growth rate for both PC hardware and software is expected to hover just over 9% for the next three to five years.

The question for many vendors is: When will users reopen the spending spigot? When they do, vendors will have to do what they can to make up for lost time. "I don't know if you can do 12 months of business in nine months," IBM's Donofrio says. "But I haven't changed anyone's quota."

How IBM Is Doing With The S/390

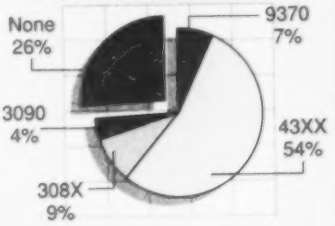
One-third of water-cooled systems are new business...

SYSTEMS BEING REPLACED BY THE WATER-COOLED ES/9000S



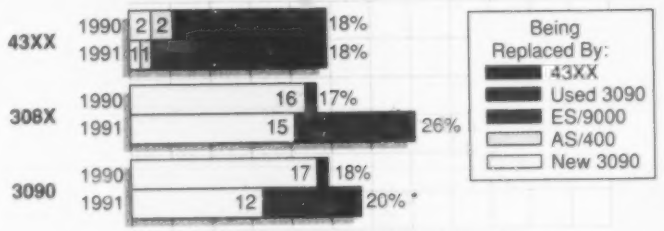
And one-fourth of air-cooled ES/9000s are new.

SYSTEMS BEING REPLACED BY THE AIR-COOLED ES/9000S



Nevertheless, there's still plenty of life in the 3090.

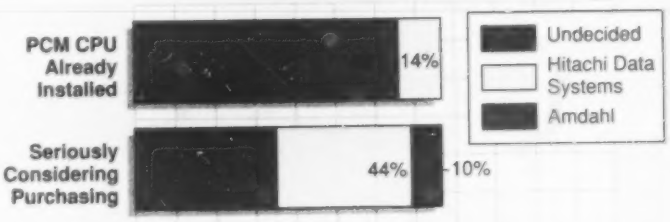
% OF CURRENTLY INSTALLED SYSTEMS SLATED TO BE REPLACED
(370-Compatible Systems Only)



*Subtotals may not add up to totals due to rounding

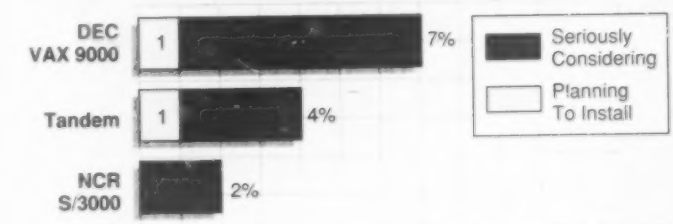
Hitachi Stings Amdahl

POTENTIAL PROGRAM-COMPATIBLE CPU SUPPLIER CITED AMONG 3090-CLASS USERS



DEC and Tandem Make Modest Inroads

% OF SITES CONSIDERING NONPROGRAM-COMPATIBLE ALTERNATIVES FOR THEIR NEWER HOST-BASED APPLICATIONS
(308X/3090-Class Sites Only)



Source: DATAMATION/Cowen & Co.

MARKET INSIGHTS

A SURVEY OF TECHNOLOGY TRENDS

Switched T1 Is The Coming Thing

BY WARREN CHILDS
Business Research Group

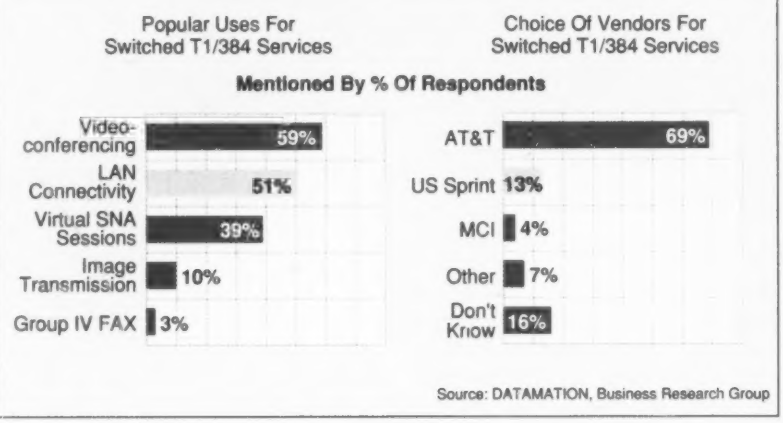
A surprisingly strong 29% of our readers are now or are planning to begin dialing up the public network to tap into switched T1 and 384-kilobit-per-second communications services for their wide-bandwidth communications needs, according to the most recent survey of the DATAMATION Technology Panel. The survey shows that 16% of panel members have already begun using switched T1 services and 384Kbps service, and an additional 13% plan to do so.

Although the cost of full-time leased lines for T1 services has dropped dramatically in recent months, so far only a few large corporations that have a consistently great need for it are signing up for this wide-bandwidth service. Many more companies have begun to implement applications that require bandwidth in multiples of 64Kbps, but for applications that are sporadic and don't justify leasing full-time T1 capacity. Demand for these occasional uses—which include videoconferencing, LAN-to-LAN connectivity and image transmission—is spurring the creation of a wide range of services from network carriers. These include fast packet switching, Switched Mutimegabit Data Sources (SMDS), Integrated Services Digital Network (ISDN), software-defined networks—and switched T1 services.

Switched T1 service and switched 384Kbps service allow users to dial up access to high-bandwidth service through the public network, removing the need to lease full-time private lines. AT&T was the first carrier to offer switched T1 and 384Kbps service; MCI Communications Corp. and US Sprint Communications Co. are now beginning to make this service more widely available, too. □

For more information, call Nancy Finn at (617)-964-6204, fax her at (617)-558-4402 or write to her at the Business Research Group, 275 Washington Street, Newton, MA 02158.

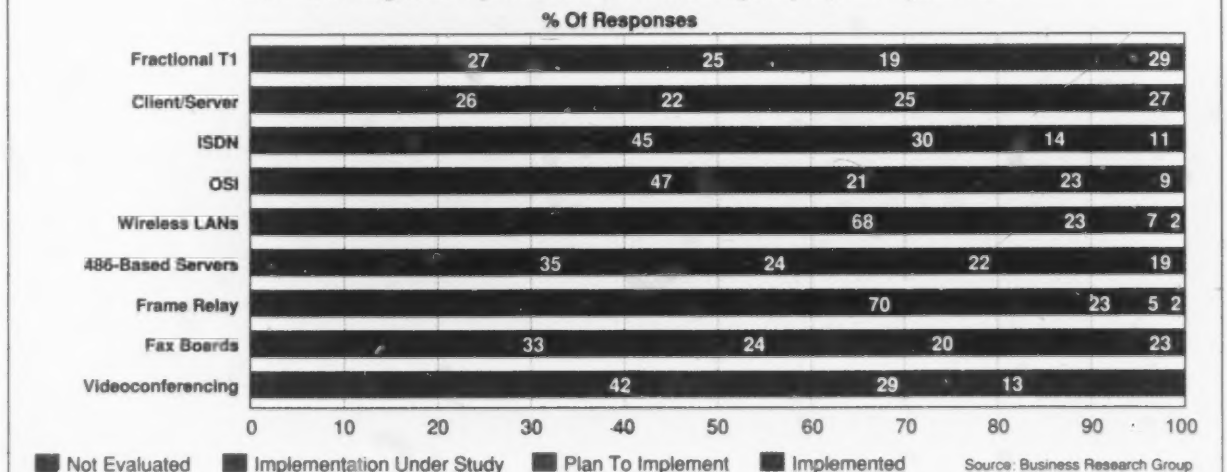
Who's Pulling The Old Switcheroo



Source: DATAMATION, Business Research Group

DATAMATION's Technology Implementation Index: Networks/Communications

DATAMATION each month surveys a select group of its readers—the DATAMATION Technology Panel— to investigate the implementation of new technologies by key user organizations.


% Of Responses
Fractional T1 27 25 19 29
Client/Server 26 22 25 27
ISDN 45 30 14 11
OSI 47 21 23 9
Wireless LANs 68 23 7 2
486-Based Servers 35 24 22 19
Frame Relay 70 23 5 2
Fax Boards 33 24 20 23
Videoconferencing 42 29 13
0 10 20 30 40 50 60 70 80 90 100
Not Evaluated
Implementation Under Study
Plan To Implement
Implemented

Source: Business Research Group